Hawk Street Viaduct
Hawk Street, one block north of
State Capitol
Albany, Albany County,
New York

HAER No. NY-10

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
Office of Archeology and Historic Preservation
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HISTORIC AMERICAN ENGINEERING RECORD

HAWK STREET VIADUCT
HAER No. NY-10

Location: Hawk Street, one block north of State Capitol
Albany, Albany County, New York
Latitude: 42° 39' 00" N. Longitude: 73° 45' 30" W.

Date of Erection: 1889-1890

Designer: Elnathan Sweet, C.E. (1837-1903)

Present Owner: City of Albany

Present Use: Pedestrian bridge from 1968 until dismantled in 1970.

Significance: First appearance of a cantilever arch bridge

PART I. HISTORICAL INFORMATION

A. Physical History:

The Hawk Street Viaduct, originally called the Hawk Street Bridge, was closed to vehicular traffic in January 1968. A monument of another age, it has been condemned as unsafe, and only pedestrians now cross over this rusted, dilapidated structure. The City of Albany plans neither to repair it nor to rebuild it. There is a proposal, however, to build a new viaduct across the same ravine a block farther west at Swan Street.*

According to the commemorative plaques attached to the bridge, it was built in 1889-1890 by the Hilton Bridge Construction Company of Albany, when Edward A. Maher was Mayor. The bridge was rebuilt in 1925 under the leadership of William S. Hackett, Mayor; Lester W. Herzog, Commissioner of Public Works, and James G. Brennan, City Engineer. Davis and Post were the consulting engineers and the Boston Bridge Works, Inc., was the contractor who did the actual repairs.

By 1949, however, extensive deterioration of the bridge made it necessary to reduce its allowable carrying load from ten to three tons. In 1958, the city appropriated $250,000 for reconstruction, but the plan was abandoned, for as a result of neglect and damage, any repair would not be practical. Neither plans for the bridge nor records

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* The viaduct was dismantled by the City in July 1970.

of its maintenance exist in the Albany City records. In its dimensions alone, the bridge is inadequate for the demands of modern traffic.

Despite its almost obscure record, the Hawk Street Viaduct is significant in the physical and social history of Albany. Spanning the ravine between Capitol Hill and Arbor Hill, it connected the fine residential section, which had grown up around the government buildings, with working class neighborhoods. A canal at one time ran through the ravine, but it has been filled in and displaced by Sheridan Avenue.

In the late nineteenth century, the Hawk Street Viaduct provided a solution to both a social and an engineering problem. It was necessary to establish direct access and communication between the separate camps of the city, but neither the city nor state governments worked rapidly toward a solution. All through the 1880's the state legislature rejected a bill authorizing a viaduct across the ravine, which, by that time, was at least an engineering and a financial possibility. Two successive mayors, city councils, and corporation counsels also opposed this logical civic improvement idea. The legislature finally approved the project in 1888, thanks to the efforts of Maurice Cranwell, the "father of the bridge," who facilitated the "poor man's short cut to town." The City of Albany at that time appropriated $125,000; only $107,000 of it was used for the construction costs which actually were only $90,000.

As a significant engineering achievement, the construction of the Hawk Street Viaduct in 1889-90 heralded the use of the cantilever arch. It was regarded as "a genuine architectural wonder," and was much admired and copied in Europe and America, in spite of the fact that it was a dry-land structure and lacked the romance and boldness of bridges across water. Other major cantilever arches were erected over the Seine and Viaur in France, and the Elbe Canal at Molln, Germany, as well as on railways in Alaska and Costa Rica. (Tyrrell, Bridge Engineering, pp. 325-326).

A contemporary writer described the Hawk Street Viaduct as "a daring experiment in bridge construction." At its highest point the viaduct is 79 feet above the street level below. A power plant on Sheridan Avenue barely rises to the level of the roadway. Undoubtedly, this elevated feature has been an invitation to the would-be suicide, and a considerable number are reported over the years to have leaped to their death from the railing to the pavement below.

The original structure novelty of the viaduct has long since been eclipsed, and its abandoned, dilapidated appearance adds a note of sadness to the general disarray of central Albany

as it undergoes reconstruction and renewal. The vast South Mall and its gigantic buildings rising slowly on Capitol Hill on one side of the Hawk Street Viaduct is matched by the leveled surface that covers much of Arbor Hill on the other side. As these areas are rebuilt, the need for a new bridge linking them across the Sheridan Avenue ravine will become more urgent. It is expected that in due course a new and more modern viaduct will rise across Swan Street, a block west of the Hawk Street Viaduct. Indeed, there may be need of another bridge across the ravine at a point closer to downtown Albany east of Hawk Street. All of this points to the growing importance and utility of a crossing at this strategic site, which has been evident since the last century.

B. Biographical Background:

Elnathan Sweet (1837-1903), the designer and engineer of the bridge, was also president of the Hilton Bridge Construction Company, its builders. Sweet's contribution was significant both professionally and technically. In many respects the Hawk Street Viaduct was the most important engineering project in his long and diversified career. Born in Cheshire, Massachusetts in the Berkshire Mountains, Sweet received a degree in civil engineering from Union College, Schenectady in 1859. It was the age of railroad building, and he traveled westward to participate in some of its more ambitious undertakings; he was particularly involved with the construction of the Rock Island and Northern Pacific railroads. In 1875 he came to Albany where Governor Samuel J. Tilden engaged him to help clean up the scandalous activities of the contractors on the state canals. Sweet was subsequently elected State Engineer of New York and served until 1887.

Returning to private engineering practice, he became president of the Hilton Company. In the Hawk Street Viaduct design he introduced some novel features, most important to the combination of the arch with the cantilever in one structure.

C. Sources of Information:

1. Unpublished:

Consultations with the City Engineer and City Planner of Albany, New York.

File on "Albany Bridges" in the Albany Room of the Albany Public Library.

2. Published:

Hislop, Codman. Albany: Dutch, English, and American. Albany, 1936.

Reynolds, Cuyler. Albany Chronicles. Albany, 1906.

Parsons, Brinckerhoff, Hogan, and MacDonald, Consulting Engineers to Albany. Know Albany Survey. Albany, 1946.

Tyrrell, Henry Grattan. A History of Bridge Engineering. Chicago: (By the author) G.B. Williams Co., Printers, 1911.

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PART II. ENGINEERING INFORMATION

A. General Statement:

1. Structural character: Steel three-hinged arched-cantilever span.

2. Condition of fabric: Poor. Closed to automobile traffic.

B. Description:

1. Over-all dimensions: 1,000 feet total length; 79 feet highest point from street level.

2. Foundations: Light gray cut granite.

3. Structural system: The viaduct's principal element is the central three-hinged, two rib arch, spanning 360 feet. Springing "backward" from each end of the arch is a 114 foot cantilever "half-arch" that balances much of the load on the central arch. Sixty-six-foot end spans extend beyond the cantilevers to the abutments. The total length of the bridge with its approaches, from Clinton Avenue to Elk Street, is 1,000 feet.

The hinges in the arch permit its elements to adjust freely to changing temperature and traffic loadings. The hinges are composed of large iron pins, 12 inches

in diameter. One pair of pins is at the top center of the arch, while the other pairs are at each of the springing points where the arch bears on underground piers of concrete. It thus combines stability and mobility. Eight-hundred tons of iron and open-hearth steel were used in the structure, which was originally paved with creosoted yellow pine blocks.

4. Special decorative details: Cast and wrought iron railings.

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PART III. PROJECT INFORMATION

These records were prepared as part of the Mohawk-Hudson Area Survey, a pilot study for the Historic American Engineering Record which was established in 1969 under the aegis of the Historic American Buildings Survey. The project was sponsored jointly by the National Park Service (Historic American Buildings Survey), the Smithsonian Institution (National Museum of History and Technology), the American Society of Civil Engineers (National Headquarters and Mohawk-Hudson Section), and the New York State Historic Trust. The field work and historical research were conducted under the general direction of Robert M. Vogel, Curator of Mechanical and Civil Engineering, Smithsonian Institution; James C. Massey, Chief, Historic American Buildings Survey; and Richard J. Pollak Professor of Architecture, Ball State University, Project Supervisor; and with the cooperation of the Department of Architecture, Rensselaer Polytechnic Institute.